

REVISED DRAFT OUTLINE

**Guidance for the Review
of TWRS Privatization Contractor
Construction Authorization Request**

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Office of Radiological, Nuclear, and Process
Safety Regulation for TWRS Privatization Contractors

Richland Operations Office
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Guidance for the Review of TWRS Privatization Contractor Construction Authorization Request

1. INTRODUCTION

2. PURPOSE

3. CONSTRUCTION AUTHORIZATION REQUEST REVIEW APPROACH

4. SUBMITTAL REQUIREMENTS AND EVALUATION CRITERIA

5. CONSTRUCTION AUTHORIZATION REQUEST ACCEPTABILITY REVIEW [Note: This Section may be eliminated.]

5.1 Completeness Requirements

5.2 Adequacy Requirements

6. CONSTRUCTION AUTHORIZATION REQUEST DETAILED REVIEW

A. A PSAR containing the following:

1.0 General Information

1.1 Site Description

1.1.1 Geography

1.1.2 Demography and Land Use

1.1.3 Meteorology

1.1.4 Hydrology

1.1.5 Geology

1.1.6 Seismology

1.1.7 Natural Phenomena Design Requirements

1.1.7.1 Selected Design-Basis External Events

1.1.7.2 Rational for their Selection

1.1.8 Man-Made External Events at the Contractor Site

1.1.9 Nearby Facilities and Transportation

1.2 Facility Description

1.2.1 Facility Location

1.2.2 Building Descriptions

1.2.3 Civil/Structural Design

1.2.4 Constructability, Operability, Reliability, Availability, Maintainability, and Inspectability (CORAMI)

1.2.5 Safety Criteria, Codes, and Standards

1.2.6 Planned Facility Operations

1.3 Process Description

1.3.1 Waste Receipt, Pretreatment, and Vitrification

1.3.2 Melter Offgas Treatment Systems

- 1.3.3 Process Vessel Vent System
- 1.3.4 Water and Steam Systems
- 1.3.5 Air and Vacuum Systems
- 1.3.6 Heating, Ventilation, and Air Conditioning Systems
- 1.3.7 Fire Protection System
- 1.3.8 Miscellaneous Mechanical Systems
- 1.3.9 Electrical Power
- 1.3.10 Instrument and Control Systems
- 2.0 Organization and Administration
 - 2.1 Organization Commitments, Relationships, Responsibilities, and Authorities
 - 2.2 Management Controls
- 3.0 Conduct of Operations
 - 3.1 Configuration Management
 - 3.1.1 Program Management
 - 3.1.2 Design Control
 - 3.1.3 Document Control
 - 3.1.4 Change Control
 - 3.1.5 Assessments
 - 3.1.6 Draft Unreviewed Safety Question Plan
 - 3.2 Maintenance
 - 3.2.1 Draft Maintenance Implementation Plan
 - 3.2.1.1 Organization and Administration
 - 3.2.1.2 Maintenance Training and Qualification
 - 3.2.1.3 Maintenance Facilities, Equipment and Tools
 - 3.2.1.4 Types of Maintenance
 - 3.2.1.5 Maintenance Procedures
 - 3.2.1.6 Planning, Scheduling, and Coordinating Maintenance Activities
 - 3.2.1.7 Control of Maintenance Activities
 - 3.2.1.8 Postmaintenance Testing
 - 3.2.1.9 Procurement of Parts, Materials, and Services
 - 3.2.1.10 Material Receipt, Inspection, Handling, Storing, Retrieving, and Issuance
 - 3.2.1.11 Control and Calibration of Measuring and Test Equipment
 - 3.2.1.12 Maintenance Tools and Equipment Control
 - 3.2.1.13 Documented Facility Condition Inspections
 - 3.2.1.14 Management Involvement with Facility Operations
 - 3.2.1.15 Maintenance History and Trending
 - 3.2.1.16 Analysis of Maintenance-related Problems
 - 3.2.1.17 Modification Work

3.3 Quality Assurance

- 3.3.1 Management Commitment for QA Program
- 3.3.2 Scope of QA Program
- 3.3.3 Organizational Responsibility
- 3.3.4 QA Program Description
- 3.3.5 Graded QA Approach
- 3.3.6 Application of Graded QA to SSCs and Activities

3.4 Training and Qualification

- 3.4.1 Organization and Management of the Training System
- 3.4.2 Draft Training and Qualification Plan
- 3.4.3 Initial and Continuing Training Programs
- 3.4.4 Training Design and Development
- 3.4.5 Systematic Evaluation of Training Effectiveness
- 3.4.6 Training Records

3.5 Human Factors

- 3.5.1 Organization and Administration
- 3.5.2 Human Factors Assessment and Correction of Deficiencies

3.6 Audits and Assessments

- 3.6.1 Description of Audit and Assessment Activity
- 3.6.2 Qualification of Auditors
- 3.6.3 Lessons Learned
- 3.6.4 Feedback and Trending

3.7 Incident Investigations

- 3.7.1 Organizational Responsibilities
- 3.7.2 Incident Identification and Reporting Process
- 3.7.3 Categorization of Incidents
- 3.7.4 State and Federal Agency Notifications
- 3.7.5 Incident Investigation Process
- 3.7.6 Reporting System
- 3.7.7 Corrective Action Program
- 3.7.8 Lessons Learned
- 3.7.9 Feedback and Trending
- 3.7.10 Draft Occurrence Reporting Procedure

3.8 Records Management

- 3.8.1 Organization and Administration
- 3.8.2 Types of Records
- 3.8.3 Records Handling Procedures
- 3.8.4 Record Storage and Protection
- 3.8.5 Records Maintained by Suppliers

3.9 Procedures

- 3.9.1 Operating Procedures
- 3.9.2 Management Control Procedures
- 3.9.3 Procedure Preparation and Approval

- 3.9.4 Procedure Control Process
- 3.9.5 Verification and Validation of Procedures
- 3.9.6 Authorization and Distribution of Procedures
- 3.10 Testing Program and Preoperational Safety Review
 - 3.10.1 Purpose of Test
 - 3.10.2 Expected Data
 - 3.10.3 Description of Test and Associated Equipment
- 3.11 Operational Practices
 - 3.11.1 Draft Conduct of Operations Plan

4.0 Preliminary Safety Analysis

- 4.1 Process Safety Information
- 4.2 Training and Qualification of Preliminary Safety Analysis Team
- 4.3 Preliminary Safety Analysis Methods
 - 4.3.1 Hazard Identification and Evaluation
 - 4.3.2 Ranking of Hazards and Accident Identification
 - 4.3.3 Methodology for Accident Consequence Analysis
 - 4.3.4 Identification of Accident Prevention and Mitigation Features
 - 4.3.5 Range of Off-Normal Internal Events
 - 4.3.5.1 Selected Design-basis Internal Events
 - 4.3.5.2 Rationale for Their Selection
 - 4.3.6 Range of Postulated Accidents
 - 4.3.6.1 Selected Design-basis Postulated Accidents
 - 4.3.6.2 Rationale for Their Selection
 - 4.3.7 Seismic Hazard Analysis
- 4.4 Results of the Preliminary Safety Analysis
 - 4.4.1 Description of the Hazards and Resulting Potential Accidents
 - 4.4.2 Description of Unmitigated Consequences of Each Potential Accident
 - 4.4.3 Description of Accident Sequence for each Potential Accident
 - 4.4.4 Summary of Accident Analysis Results
 - 4.4.5 Analysis of Hazards-Control Features
 - 4.4.5.1 Facility Operating Modes
 - 4.4.5.2 Off-normal Conditions
 - 4.4.5.3 Design-basis Internal Events
 - 4.4.5.4 Design-Basis External Events
- 4.5 Controls for Prevention and Mitigation of Accidents
 - 4.5.1 Administrative Controls
 - 4.5.2 Engineered Safety Features
 - 4.5.3 Physical Barriers
 - 4.5.4 Facility Features and Functions Provided to Control Radiological, Nuclear, and Process Hazards

- 4.5.5 Process Functions Provided to Control the Radiological, Nuclear, and Process Hazards
 - 4.5.6 Potential Safety Limits
 - 4.5.6.1 Selection of Safety Limits
 - 4.5.6.2 Rationale for Their Selection
 - 4.5.7 Draft Technical Safety Requirements
- 4.6 Administrative Control of the Preliminary Safety Analysis
- 5.0 Radiation Safety
 - 5.1 As Low As Reasonably Achievable (ALARA) Policy and Program
 - 5.2 Organizational Relationships and Personnel Qualifications
 - 5.3 Radiological Safety Standards and Administrative Control Levels
 - 5.4 Radiation Safety Procedures and Radiological Work Permits (RWPs)
 - 5.5 Training
 - 5.6 Ventilation Systems
 - 5.7 Air Sampling
 - 5.8 Contamination Control
 - 5.9 External Exposure
 - 5.10 Internal Exposure
 - 5.11 Summing Internal and External Exposures
 - 5.12 Respiratory Protection
 - 5.13 Instrumentation
 - 5.14 Preliminary Safety Analysis
 - 5.15 Summary of Radiation Protection Program (The radiation program required by 10CFR835 will be a separate submittal in Section F.)
- 6.0 Nuclear Criticality Safety (NCS)
 - 6.1 Nuclear Criticality Safety Technical Practices
 - 6.1.1 Process Analysis from the Preliminary Safety Analysis
 - 6.1.2 NCS Evaluations
 - 6.1.3 NCS Limits
 - 6.1.4 Validation and Use of Analytical Methods
 - 6.1.5 NCS Control Methods
 - 6.1.6 Criticality Accident Alarm System
 - 6.2 Administrative Practices
 - 6.2.1 NCS Organizational Responsibilities
 - 6.2.2 Configuration Management
 - 6.2.3 Maintenance
 - 6.2.4 Quality Assurance
 - 6.2.5 Training
 - 6.2.6 Operational Inspections, Audits, Assessments, and Investigations
 - 6.2.7 Written Operating Procedures
 - 6.2.8 Materials Control for NCS
 - 6.2.9 Emergency Preparedness

7.0 Chemical Safety

7.1 Chemical Safety Responsibility

7.2 Chemical Safety Approach

7.2.1 Chemical Inventory

7.2.2 Procedures

7.2.3 Training

7.2.4 Maintenance

7.2.5 Configuration Management

7.2.6 Emergency Planning

7.2.7 Incident Investigation

7.2.8 Audits and Assessments

7.2.9 Quality Assurance

7.2.10 Human Factors

7.3 Chemical Safety Controls

7.4 Chemical Safety for Workers

7.5 Consequence Estimates

8.0 Fire Safety

8.1 Fire Safety Management

8.2 Fire Prevention Program

8.3 Fire Protection Features and Systems

8.4 Manual Fire Fighting Capabilities

8.5 Fire Safety Training

8.6 Fire Hazard Analysis

9.0 Emergency Management

9.1 Description of On-Site and Off-Site Emergency Facilities

9.2 Types of Accidents

9.3 Classification of Accidents

9.4 Detection of Accidents

9.5 Mitigation of Consequences

9.6 Assessment of Releases

9.7 Responsibilities of Contractor and Other Organizational Personnel

9.8 Notification and Coordination

9.9 Description of the Emergency Operations Center

9.10 Information to be Communicated and the Parties to be Contacted

9.11 Public Notification

9.12 Training

9.13 Procedures for Safe Shutdown and Recovery

9.14 Drills and Exercises

9.15 Procedures for Identifying, Locating, and Controlling Hazardous Chemicals

9.16 Responsibilities for Developing and Maintaining Current the Emergency Program and Its Procedures

- 10.0 Environmental Protection
 - 10.1 Environmental Report
 - 10.2 Environmental Protection
- 11.0 Deactivation and Decommissioning
 - 11.1 Draft Deactivation Plan
 - 11.2 D&D features provided in the design and the draft deactivation plan.
- B. Contractor's Technical and Experience Qualifications to Construct the Plant
- C. The Approach to be used to implement the Construction Portions of the SRD and ISMP
- D. The current SRD and the ISMP and an assessment of compliance to the SRD and ISMP (note the changes relative to the SRD and the ISMP approved by the Regulatory Unit). This should include the following:
 - 1. Summary of Changes to Approved SRD and Rationale for the Changes
 - 2. Assessment of Compliance to SRD
 - 3. Summary of Changes to the Approved ISMP and Rationale for the Changes
 - 4. Assessment of Compliance to the ISMP
- E. The Draft Emergency Response Plan
- F. The Draft Radiation Protection Program (as required by 10CFR835)
- G. The Draft Environmental Radiological Protection Program (This is a requirement of the Construction Authorization Request that is not covered in A. above.)
- H. Design Data and Design Drawings to Support Description of Facility Structures, Systems, and Components Including those Designated as Important to Safety (This is a requirement of the Construction Authorization Request that is not covered in A. above.)

7.0 CONSTRUCTION AUTHORIZATION REQUEST RESULTS

8.0 ABBREVIATIONS

9.0 GLOSSARY

10.0 APPENDICES

Appendix A: Nuclear Regulatory Commission Input

